

CREAGDHUBHIA MALLOCHORUM GEN. AND SP. N. (DIPTERA: MYCETOPHILIDAE), A REMARKABLE NEW SCOTTISH GNAT WITH A DISCUSSION OF ITS RELATIONSHIPS

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Abstract. Two new genera are proposed, *Creagdhubhia* for a new species from Scotland, *C. mallochorum* sp. n., and *Phoenikiella* for a single Mediterranean species, *Grzegorzekia phoenix* Väisänen. The relationships of these genera with other genera of Gnoristinae, including *Grzegorzekia* Edwards, which is here reclassified to *G. collaris* (Meigen), are discussed.

INTRODUCTION

On 17 May 1994, Graham Rotheray and David Robertson were searching for early stages of saproxylic Diptera in an area of relict Caledonian pine (*Pinus sylvestris* forest (NN6595), situated on a hilltop about 6km south-west of Newtonmore, Inverness-shire and about 1km west of Creag Dhubh (pronounced Craig Dou). When they lifted some loose bark from a dead pine trunk, they were surprised to find an adult male fungus gnat which was subsequently passed to me for examination. The site was visited as part of the Malloch Society Saproxylic Diptera project.

The gnat was predominantly dark grey in colour, slender bodied with long yellow legs and comparatively large bulbous brownish yellow genitalia. The wings (length 5.2mm) were narrow, yellowish with a faint dark patch over a median radial cell.

It was soon realised that this was something unusual. The specimen ran in the keys by Hutson, Ackland & Kidd (1980) to the genus *Grzegorzekia* Edwards, which includes a single British and European species *G. collaris* (Meig.) and which was monotypic until Väisänen (1984) described a second species, *G. phoenix*, from Tunisia and Israel. The Creag Dhubh specimen, however, differed in many respects from these species. It was, nevertheless, assigned provisionally to *Grzegorzekia* and was cited under that name in Note 1 in the new British Diptera check list (Chandler 1998).

An attempt was made to find further material of the species, when I visited the site with its collectors on 18 July 1997. The location, reached after a steep climb through conifer plantations on the lower slopes, afforded spectacular views of the surrounding landscape which were enjoyed by eagles (*Aquila chrysaetos*), whose eyry surmounted a standing pine at the edge of the hilltop. However, although 41 species of fungus gnats were recorded, the species sought was not found and it remains represented by a unique example.

This species is here described as new and a new genus is also proposed for it. This is placed in context by discussion of the characters of *Grzegorzekia* species and recognition of this new genus and another for *G. phoenix* are justified.

Creagdhubhia gen. n.

A genus of Gnoristinae *sensu* Väisänen (1986) with wing venation resembling that of *Grzegorzekia* Edwards, presently known only from the male. Adult slender bodied, with long slender antennae and legs, short proboscis and long narrow wings.

Head with three ocelli, almost in line, with the lateral ocelli larger, ovate and situated their individual diameter from the eye margins. Antennae comprising 2 + 14

segments, with long slender flagellomeres. Palpi normally developed, five segmented, with third palpomere bearing a round sensory pit dorsally, fifth palpomere long and slender. Eyes ovate, distinctly emarginate adjacent to antennal base.

Thorax with long irregularly biserial acrostichals and dorsocentrals as well as long setae on sides of mesoscutum; long scutellar marginals and long setae on proepisternum; pleura including laterotergite, mediotergite and metepisternum bare.

Legs slender with all setulae irregular; mid and hind tibiae with some stronger setae on shaft. Mid tibia of male slightly swollen basally, with elongate bare area on basal third, probably corresponding to the apparently sensory area in some other genera (see below). Hind tibia without apical comb. Tibial spurs 1:2:2. Empodium not developed.

Wing membrane devoid of setae and macrotrichia. Vein Sc ending in costa, not setose. Vein sc-r present and situated beyond middle of vein Sc. Vein R_4 present, vertical, forming a small rectangular radial cell. Vein R_5 downturned apically, costa exceeding its tip by a short distance. Crossvein r-m oblique. Median fork with stem short but more than twice as long as r-m. Posterior fork with long stem, fork beginning basad of base of stem of median fork. Radial veins, veins of median and posterior forks and A_1 setose on the dorsal surface; other veins including stem of posterior fork bare.

Male abdomen slender with anterior sternites (1–5) bearing a weakly sclerotised median furrow; segments 7 and 8 short but their sternites well developed, tergite 7 shorter than its sternite and narrowed medially, tergite 8 narrow and about half length of sternite 8 laterally, strongly constricted medially. Tergite 9 large and broad, covering more than basal half of genitalia. Tergite 10 short, cleft medially, bearing pair of oval spinose cerci and well developed bilobed epiproct, basally articulating with bilobed hypoproct. Gonocoxites large and bearing basal (ventral) and apical lobes. Gonostylus present but small and weak, set between apical lobes of gonocoxites. Aedeagus and parameres situated close to ventral surface of gonocoxites.

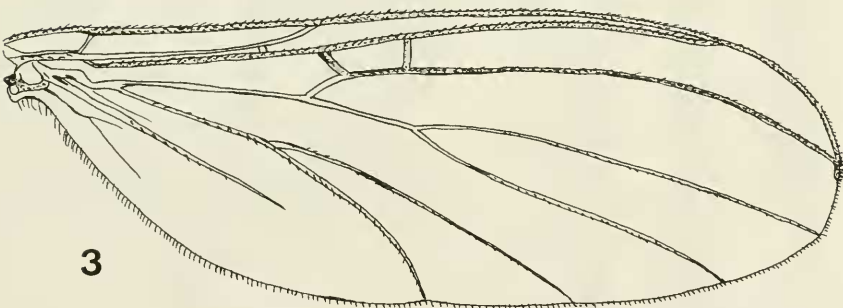
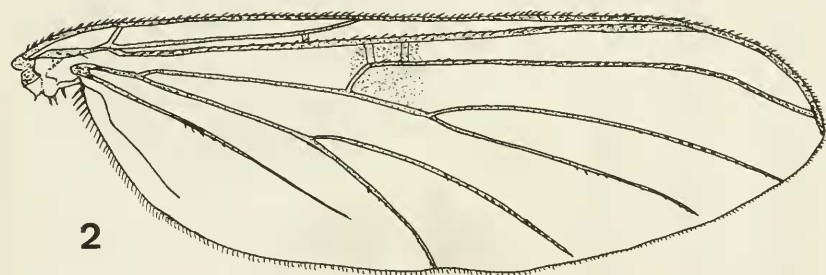
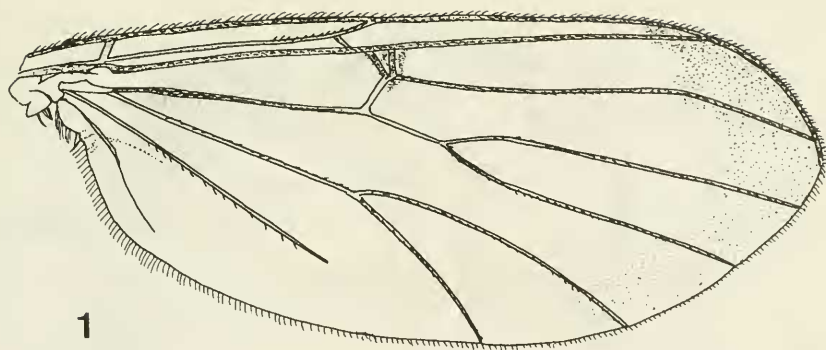
Etymology. The genus is named for the only known locality of the type-species.

Type-species: *C. mallochorum* sp. n.

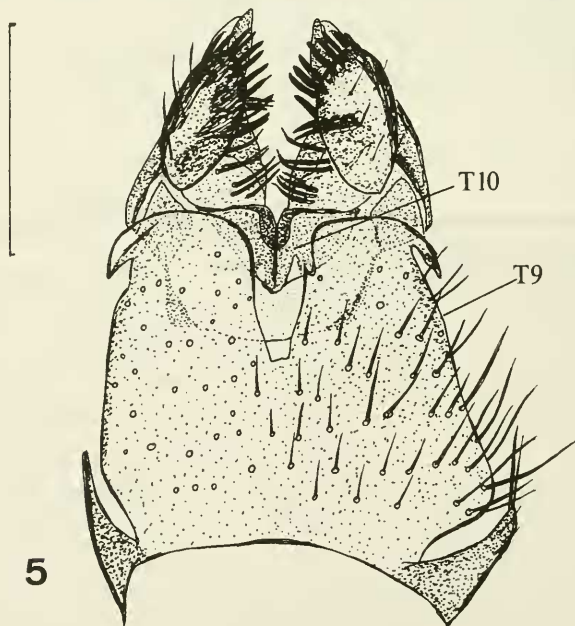
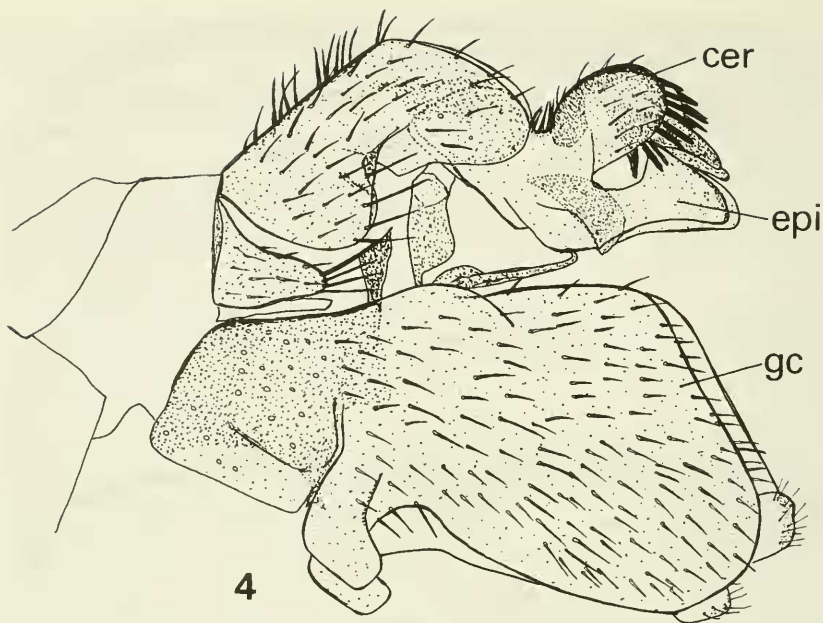
DISCUSSION

Diagnostic characters of this genus in common with *Grzegorzekia* are Sc ending in costa, sc-r present and situated within apical third of Sc, R_4 present and relatively close to Rs, posterior fork with long stem but forking at or before level of base of the stem of the median fork; lateral ocelli their diameter distant from the eye margins; tibial setulae irregular and no hind tibial comb; empodium rudimentary or absent. Some characters of the male genitalia are in common with *G. collaris* but not with *G. phoenix*, e.g. well developed proctiger and the gonocoxites with lateral parts bearing a converging basal lobe ventrally and bilobed apically.

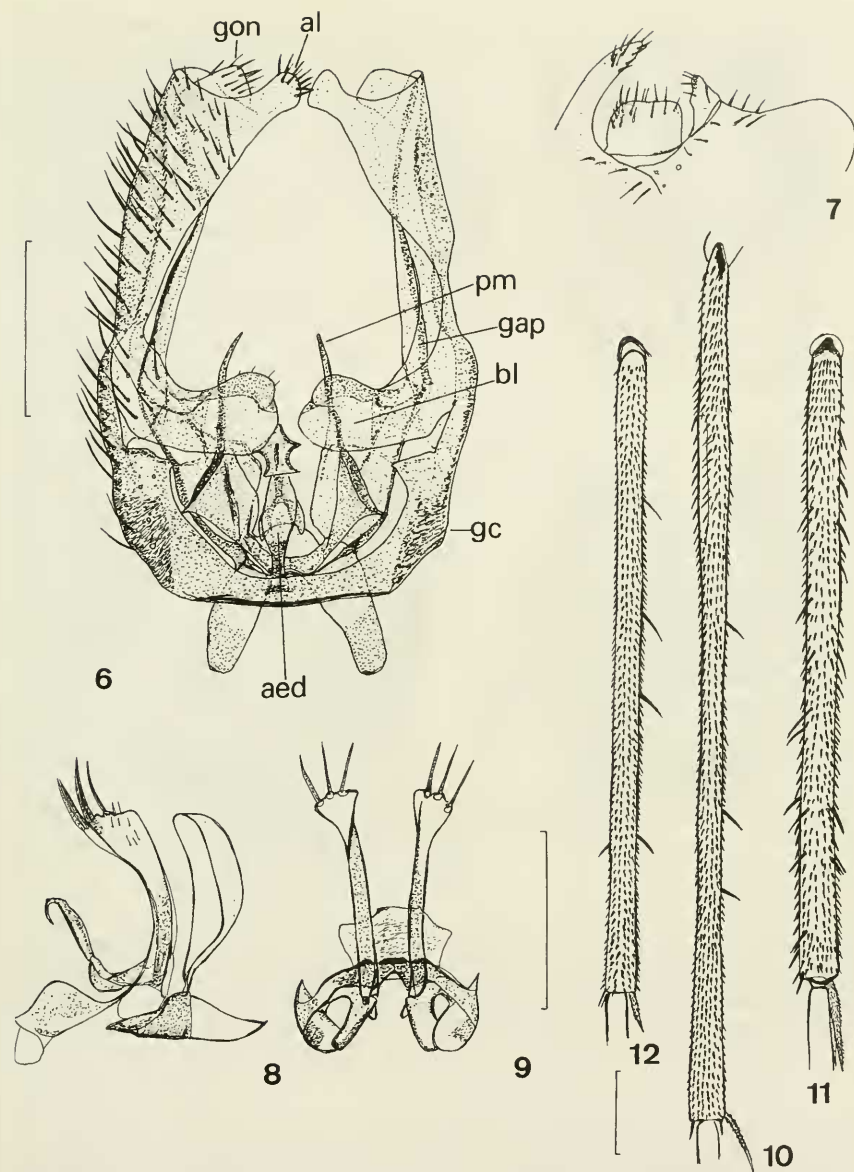
It differs from both *Grzegorzekia* species in absence of setae on the stem of the posterior fork and from *collaris* in Sc also lacking setae. It resembles *phoenix*, but not *collaris*, in R_4 not being closely approximated to Rs and in the posterior fork arising just before rather than immediately below the base of the stem of the median fork. Other differences from both *Grzegorzekia* species are the presence of the "sensory" area on male mid tibia, presence of gonostyli (although these are reduced) and presence of spinose setae on the cerci. The relationship between these three species is discussed below and the conclusion is drawn that the differences between *G. collaris* and *G. phoenix* are also sufficient to warrant generic separation and a new genus is described for the latter.



Figs 1–3. Male wings. 1, *Grzegorzekia collaris* (Meigen); 2, *Creagdhubhia mallochorum* sp. n.; 3, *Phoenikiella phoenix* (Väisänen).

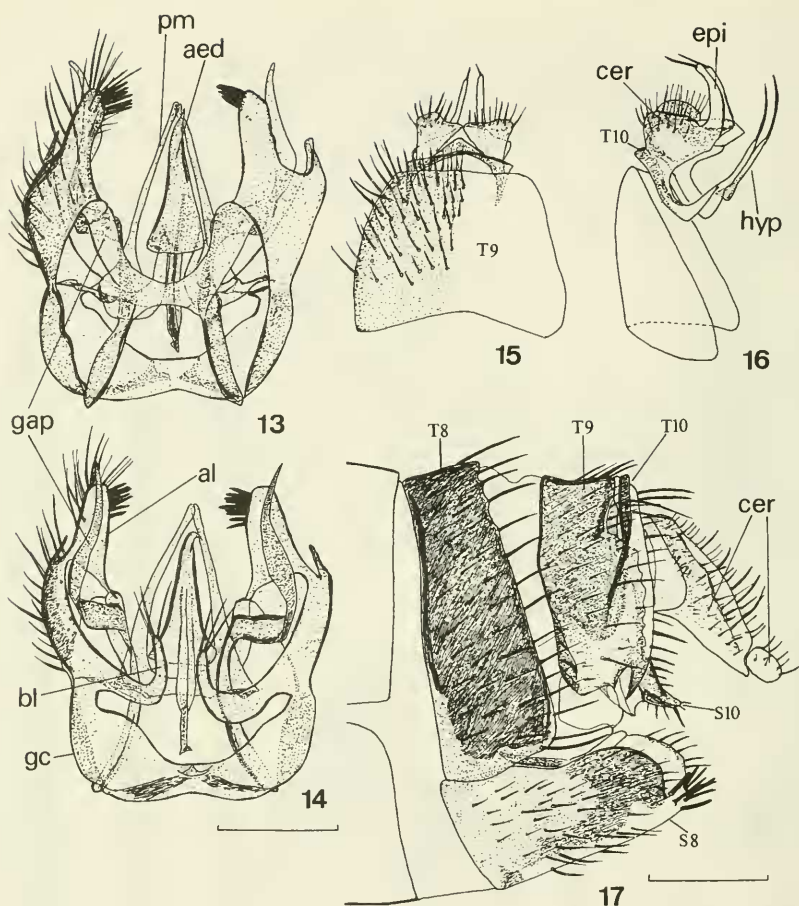


Figs 4-5. Male genitalia of *Creagdhubhia mallochorum* sp. n. 4, lateral view; 5, dorsal view of tergites 9-10 and cerci. Abbreviations: cer=cercus, epi=epiproct, gc=gonocoxites, T=tergite. Scale line 0.2 mm.



Figs 6-12. 6-9, male genitalia of *Creagdhubhia mallochorum* sp. n.: 6, ventral view of gonocoxites, aedeagus and parameres; 7, ventrolateral view of gonostylus; 8, lateral view of hypoproct; 9, ventral view of hypoproct. Scale line 0.25 mm. Abbreviations: aed = aedeagus, al = apical lobe of gonocoxite, bl = basal lobe of gonocoxite, gap = gonocoxal apodeme, gc = gonocoxites, gon = gonostylus, pm = paramere.

10-12, male mid tibia, dorsal view: 10, *Creagdhubhia mallochorum* sp. n.; 11, *Grzegorzekia collaris* (Meigen); 12, *Phoenikiella phoenix* (Väisänen). Scale line 0.2 mm.



Figs 13–17. *Grzegorzekia collaris* (Meigen): 13–16, male genitalia: 13, dorsal view of gonocoxites, aedeagus and parameres; 14, ventral view of gonocoxites, aedeagus and parameres; 15, dorsal view of tergites 9–10 and cerci; 16, lateral view of cerci and proctiger. 17, ovipositor, lateral view. Abbreviations: as Figs 4–6 and hyp = hypoproct, S = sternite. Scale line 0.25 mm.

Creagdhubhia mallochorum sp. n. (Figs 2, 4–10)

Male. Head dark grey with pale setae. Antenna as long as the thorax, with short dark basal segments; first flagellomere pale at base, flagellum otherwise dark grey, covered with short pale hairs; flagellomeres elongate, first $4.5\times$ as long as broad, subsequent flagellomeres progressively shorter, terminal flagellomere $3\times$ as long as broad, with a small narrow apical protuberance. Palpus slender, about as long as height of eye, third and fourth palpomeres about twice as long as broad, dark grey; apical palpomere long, slender and paler; proboscis short.

Thorax entirely shining dark grey with three more shining blackish stripes on mesoscutum. Median row of acrostichals and rows of dorsocentrals between these stripes are long, pale and irregularly biserial. Long pale setae on sides of dorsum and irregular series of pale setae on scutellum, some a little more than scutellar length. Proepisternum with long pale setae. Pleura including laterotergite and mediotergite are bare.

Legs yellow, with coxae slightly greyish; long setae on coxae pale, other leg setae dark. Femora with only irregular short setulae. Tibiae covered with irregular dark setulae, mid and hind tibiae with a few larger setae, which are shorter than tibial width. Mid tibia (Fig. 10) with basal two-fifths slightly swollen, with a narrow bare strip situated posterodorsally on second fifth, with a row of longer setulae on its anterior margin; beyond this area 3 anterodorsal setae and 1 posteroventral seta level with the last of these. Hind tibia with 2 anterodorsals, 3 posterodorsals and 3 short posteroventral setae near tip. Tibial spurs pale yellow; 1 = tibial width, 2 a little longer, 3 $2.5 \times$ tibial width.

Wing (Fig. 2) long and narrow, pale yellowish with a faint darker patch over the radial cell, extending to the stem of the median fork. Costa and radial veins brown, Sc and other veins paler. Sc long, reaching costa level with base of Rs, crossvein sc-r at its apical quarter. Veins R_1 and R_5 long, parallel. R_5 ending near wing tip, costa exceeding it by a quarter distance to M_1 . R_4 vertical, forming a short radial cell subequal to crossvein r-m in length. Stem of median fork short, but more than twice as long as r-m and fork begins a little beyond level of R_4 . Veins M_2 and CuA_1 slightly abbreviated from wing margin. Posterior fork long, beginning basal to base of stem of median fork. Vein A_1 long, reaching level of half length of CuA_2 . Haltere yellow.

Abdomen shining dark grey with pale hairs; tergites 2–4 long, 5–6 progressively shorter, 7–8 short but distinct; tergite 7 narrowed to a third length of sternite 7 medially; tergite 8 laterally about a third length of sternite 8 but strongly narrowed medially; sternites 1–5 weakly sclerotised with broad median and narrow submarginal furrows; sternites 6–8 more uniformly sclerotised. Genitalia large and mainly brownish yellow (Figs 4–9); basal part covered by tergite 9 (Fig. 5) which is large and dark grey, truncate apically, with median emargination. Cerci are large, ovoid and bearing strong spinose setae on the apical and internal surfaces. Proctiger well developed; epiproct (Fig. 4) with two strongly thickened lobes, closely apposed to the cerci; hypoproct (Figs 8–9) with a pair of strap-shaped processes, broadened and bearing 3 setae apically. Gonocoxites large with broad lateral lobes (Fig. 4, 6), each of these basally bearing a broadly rounded ventral lobe and apically bilobed with narrower setose ventral lobe and small quadrate gonostylus (Figs 6–7), articulating with inner surface between these apical lobes. Basally gonocoxites enclose aedeagus and parameres (Fig. 6), situated ventral to the gonocoxal apodemes, which are apically fused to the internal surface of the lateral lobes of the gonocoxites.

Wing length 5.2 mm, body 5.5 mm, antenna 2.7 mm, hind leg 7.5 mm.

Female. Unknown.

HOLOTYPE male, Scotland: Inverness-shire, NN6595, near Creag Dhubh, south-west of Newtonmore, 17.v.1994, under loose bark of dead *Pinus sylvestris*, G. E. Rotheray and D. M. Robertson, deposited in National Museums of Scotland.

Etymology. The specific name refers collectively to the members of the Malloch Society, who have done so much to advance knowledge of the biology and distribution of Scottish Diptera.

Biology. Little can be deduced as to the precise requirements of this species from the circumstances of the single find. However, it seems likely that the gnat had recently emerged from the pupa, which was probably situated under the pine bark.

Development may also have taken place in this situation, although whether the larva is saproxylic or mycophagous awaits further investigation.

Grzegorzekia collaris is known to be associated with damp decaying wood of broad-leaved trees and several of the recently recorded sites are alderwoods; it is very local, but found throughout Britain. Details of the rearing by R. E. Evans were given by Hutson, Ackland & Kidd (1980) and Chandler (1993). Larvae live on the surface of damp rotten wood, from which they retreat into a web, which is individual but may be in numbers together. Pupation takes place on the wood, without a cocoon. The biology of *G. phoenix* is unknown, but it was found in Tunisia at a locality with date palms (*Phoenix dactylifera*), hence the name.

CHARACTERS OF THE SPECIES HITHERTO PLACED IN *GRZEGORZEKIA* EDWARDS

As indicated above, *G. collaris* (Meig.) differs in many respects from *C. mallochorum*. The body and legs are less slender. The thorax is shining black, except for the yellow prothorax, so the mesoscutum is without distinct stripes. The abdomen is shining black with yellow basal markings on each segment, especially developed on tergites 3–4. The legs are entirely yellow, lacking the "sensory" area on mid tibia (Fig. 11). The wing (Fig. 1) is broader than that of *mallochorum* and is brownish apically as well as a spot over the radial cell; the latter spot is darker but more restricted to the vicinity of the cell than in *mallochorum*. Vein R_4 is situated close to the junction of R_s with $r-m$ and is variable in the extent of this proximity (even in two wings of the same individual), sometimes being fused with R_s before the junction, so radial cell more or less contracted and in some cases almost obsolete. Vein Sc is setose on the apical half and $sc-r$ is situated closer to the base of R_s than in *mallochorum* or *phoenix*.

The male genitalia of *collaris* also differ markedly in structure from *mallochorum*. They were figured by Hutson, Ackland & Kidd (1980) and by Söli (1997; Figs. 27, D–F, not C–F as stated), who indicated the homologies of the parts with other genera of Mycetophilidae. The figures provided here (Figs 13–16) illustrate the differences from *mallochorum* and *phoenix*, as well as the characters in common with these species. The most significant character is the loss of differentiated gonostyli, a character shared with *G. phoenix*. The weakly developed gonostyli in *C. mallochorum* may represent a stage in the loss of these structures. The genitalia are overall shorter and broader than in *mallochorum*; tergite 9 (Fig. 15) is similar proportionally but simple in structure and tergite 10 is a narrow medially constricted strip; the cerci are simply setose without spines. The proctiger (Fig. 16) is well developed, as in *mallochorum*, with a bilobed epiproct closely associated with the cerci and bilobed hypoproct articulating basally; the lobes of both epiproct and hypoproct are slender with a single apical seta. The lateral parts of the gonocoxites (Figs 13–14) are more deeply bilobed apically with the better developed dorsal lobe bearing spines and the basal (ventral) lobe is slender and curved with long apical setae (Fig. 14). The aedeagus and parameres (Figs 13–14) are proportionally much larger. Söli has apparently misidentified, as parameres, the slender processes extending beyond the apical margin of the gonocoxites (Figs 13–14). These processes are actually outgrowths of the gonocoxal apodemes and occupy the position of the missing gonostyli.

Although the female of *C. mallochorum* is as yet unknown, females of *collaris* and *phoenix* are available. The ovipositor of *collaris* (Fig. 17) is short and dark coloured with yellow two-segmented cerci; sternite 8 bears a series of spinose setae on the straight-edged middle portion of its apical margin (the labia of Söli, 1997).

Additional material of *G. phoenix* from Israel was reported by Chandler (1994) and this species has also been found in Malta (Gatt & Chandler in preparation). Fresh examination of the Israeli material, from which the figures included here have been drawn, permitted the conclusions reached here. This species was assigned to *Grzegorzekia* on the basis of the wing venation (Fig. 3). The most obvious differences from *G. collaris* are the more distad position of R_4 , so that the radial cell is at least twice as long as broad, and the more basal position of the base of the posterior fork; distribution of setae on wing veins is similar to *collaris* except for absence of setae on Sc; the wing is uniformly yellowish without darker markings. The body is dark brown with the apical margins of abdominal tergites yellowish; the legs are yellowish and similar in structure to *collaris*, the male mid tibia (Fig. 12) lacking a "sensory" area and with stronger setae about as long as the tibial width.

The male genitalia of *G. phoenix* were figured by Väisänen in tergal, lateral and sternal views but not described by him. It was, however, obvious that gonostyli are absent, a character in common with *G. collaris*. Here tergite 9 and the associated structures (Fig. 19) have been removed to figure the gonocoxites and aedeagal complex in dorsal view (Fig. 18). Tergite 9 is simple in structure as in *collaris* but distinctly shorter than broad; tergite 10 narrow and weakly sclerotised; epiproct not clearly differentiated from cerci but hypoproct comprising a pair of apically tapered lobes bearing a single apical seta as in *collaris*. The gonocoxites are also more simple in structure than in *collaris* and *mallochorum*, with the basal part broadly rounded ventrally, lacking the basal lobe ventrally and with only a pointed dorsal lobe well developed apically. The relatively small aedeagus and slender apically broadened and internally pointed parameres are ventrally situated, enclosed within the broad basal lobes of the gonocoxites.

Although Väisänen (1984) described the female of *phoenix*, he did not figure it, so the ovipositor is figured here (Fig. 20). It is broadly similar in structure to that of *collaris*, but differs in many details, especially the form of sternite 8, which lacks spinose setae.

A new genus is proposed below for *G. phoenix*.

Phoenikiella gen. n.

A genus of Gnoristinae *sensu* Väisänen (1986) with wing venation resembling that of *Grzegorzekia* Edwards. Adult slender-bodied, with long antennae and legs, short proboscis and wings broad, but a little narrower than in *Grzegorzekia*.

Head with three ocelli, almost in line, with the lateral ocelli larger, ovate and situated their individual diameter from the eye margins. Antennae comprising 2 + 14 segments, with long slender flagellomeres. Palpi normally developed, five segmented, with third palpomere bearing a round sensory pit dorsally, fifth palpomere long and slender.

Thorax with long irregularly biserial acrostichals and dorsocentrals as well as long setae on sides of mesoscutum; long scutellar marginals and long setae on propisternum; pleura including laterotergite, mediotergite and metepisternum bare.

Legs slender with all setulae irregular; mid and hind tibiae with some stronger setae on shaft. Mid tibia of male without "sensory" area differentiated. Hind tibia without apical comb. Tibial spurs 1:2:2. Empodium not developed.

Wing membrane devoid of setae and macrotrichia. Vein Sc ending in costa, not setose. Vein sc-r present and situated beyond middle of vein Sc. Vein R_4 present, vertical, forming a small trapezoidal radial cell, longer than broad. Vein R_5 downturned apically, costa exceeding its tip by a short distance. Crossvein r-m

oblique. Median fork with stem short but more than twice as long as r-m. Posterior fork with long stem, fork beginning level with or more usually basad of base of stem of median fork. Radial veins, veins of median and posterior forks, stem of posterior fork and A_1 setose; other veins including stem of median fork bare.

Male abdomen slender with sternites bearing a weakly sclerotised median furrow; segment 7 not much shorter than 6, its tergite almost as long as sternite, segment 8 shorter with tergite 8 narrow and about half length of tergite 7, but not constricted medially. Tergite 9 distinctly shorter than broad, covering less than basal half of genitalia. Tergite 10 narrow and weakly sclerotised; cerci not well differentiated from epiproct, both bearing several long simple setae; hypoproct bilobed, the lobes bearing an apical seta. Gonocoxites broadly rounded ventrally with a median cleft below aedeagus and no setose basal lobe; lateral lobes not bifid apically but tapered to a point; the long pointed processes of the gonocoxal apodemes, found in *Grzegorzekia collaris*, are lacking. Gonostylus absent. Aedeagus and parameres situated close to ventral surface of gonocoxites.

Female abdomen broader than in male, laterally compressed apically; segment 8 with tergite broad and narrow, about half length of tergite 7; sternite 8 longer, its apical margin with medial portion (labia) between rounded setose lobes (on ventral margin in Fig. 20) lacking spinose setae; tergites 9 and 10 short; cerci elongate, two segmented.

Etymology. The genus is named to signify the distribution of the known species in the Levant and parts of the Mediterranean region colonised by the Phoeniceans.

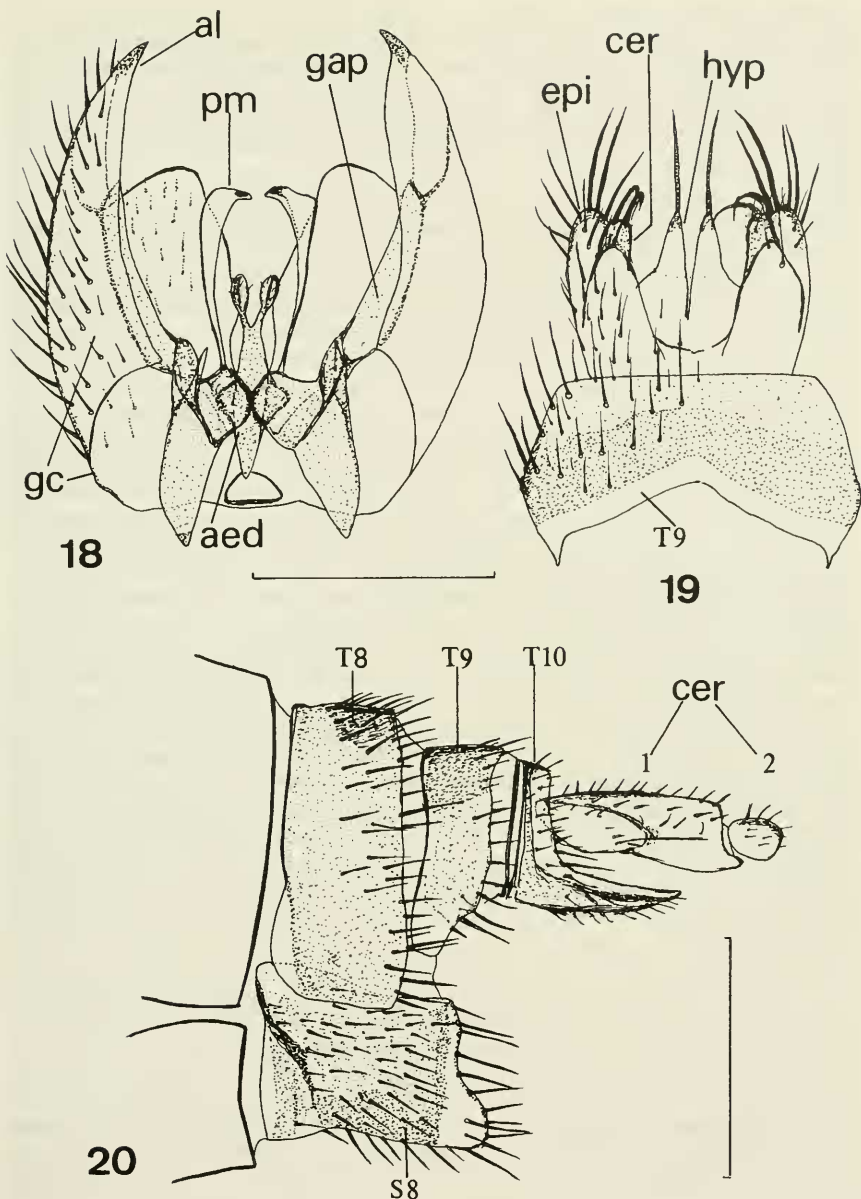
Type-species: *Grzegorzekia phoenix* Väisänen.

RELATIONSHIPS BETWEEN GENERA DISCUSSED HERE AND OTHER GNORISTINAE

When he described *phoenix*, Väisänen (1984) suggested that it was intermediate in some characters between *Grzegorzekia collaris* and the Nearctic genus *Aglaomyia* Vockeroth (1980), which was then monotypic and known only from the female. Characters in common between *Grzegorzekia* and *Aglaomyia*, which Väisänen considered to represent a monophyletic group, included all of the non-genital characters cited above as being in common between *Creaghdhubhia* and *Grzegorzekia* with the exception of the absence of vein R_4 in *Aglaomyia*. More recently Zaitzev (1994) has referred the European species *Boletina ingrata* Stackelberg to *Aglaomyia* and the male of the Nearctic species *A. gatineau* Vockeroth has also been discovered. It is consequently now known that *Aglaomyia* has rather different male genital structure, with large gonostyli, and is probably not closely related to *Grzegorzekia*.

Phoenikiella and *Aglaomyia* share a bare vein Sc (as does *C. mallochorum*) but Väisänen considered this a parallelism. He suggested that a bare metepisternum was a synapomorphy of *collaris* and *phoenix*, while they also shared several characters considered plesiomorphous with respect to *Aglaomyia*.

These genera are placed in the Gnoristinae as defined by Väisänen (1986), which largely corresponds to the tribe Gnoristini of Edwards (1925), with transfer of some genera both ways with the Sciophilinae *sensu stricto*. As suggested by the phylogenetic analysis of Palaearctic genera by Söli (1997), this group is probably more paraphyletic than other similar groupings within Mycetophilidae and recognition of this subfamily may not be justified. As presently constituted it comprises a diverse assemblage of genera, which includes some of those with the most plesiomorphous wing venation in the family. Indeed, two genera transferred here from the Leiinae by Väisänen (1986), *Tetragoneura* Winnertz and *Ectrepesthoneura* Enderlein, were concluded by Söli to represent the sister group of



Figs 18–20. Genitalia of *Phoenikiella phoenix* (Väisänen): 18, dorsal view of gonocoxites, aedeagus and parameres; 19, dorsal view of tergite 9, cerci and proctiger; 20, lateral view of ovipositor. Abbreviations: as Figs 4–6 and 13–17. Scale lines, Figs 18–19, 0.2mm; Fig. 20, 0.33mm.

Leiinae + Manotinae + Mycetophilinae, this entire group arising within the Gnoristinae. It was, however, unclear from his results whether the restricted Sciophilinae and/or Mycomyinae (which are more clearly monophyletic groups) also arose within a group comprising "gnoristine" genera and the other subfamilies, or had sister group relationships with this large grouping. Söli considered that *Paratinia* Mik, retained in Sciophilinae by Väisänen, was more closely related to some "gnoristine" genera, especially *Drepanocercus* Vockeroth. *Eudicrana* Loew, also considered by Väisänen to represent a subfamilial taxon, was not studied by Söli.

Most generic divisions in the Gnoristinae were initially based on wing venation, although many have been subsequently supported by other structures including the male genitalia. Many of the genera include relatively few species, the genus *Boletina* Staeger being the only gnoristine genus with a large number of known species. Söli (1997) provided a modern revision of the moderate-sized genus *Coelosia* Winnertz but many other genera, including *Boletina*, are in need of revision. It is clear that some currently recognised genera, especially *Dziedzickia* Johannsen and *Ectrepesthoneura*, are paraphyletic and further genera will need to be recognised in these groups.

Väisänen (1984) considered the proposal of a new genus for *phoenix*, as he recognised that the differences between *phoenix* and *collaris* were sufficient to warrant this. However, he did not adopt this approach for several reasons: the suggested monophyly of these species within a group also thought to comprise *Aglaomyia* and in such cases he considered that enlargement of the concepts of existing genera was better than establishing new monotypic genera; also, in cases where there was unresolved polychotomy (such as the suggested trichotomy in this case), establishment of a new genus could be construed as a confession of ignorance. He did, however, also state the counter-argument that following such a solution can lead to a species being forgotten in a genus, in which it has been perhaps wrongly placed, and also suggested that proposal of subgenera might be a useful interim solution.

I agree with the latter suggestions and it might have been appropriate for the taxa newly proposed here to be accorded subgeneric rank within a broadened concept of *Grzegorzekia*. This may prove to be an appropriate solution, in one or other case, when a thorough revision of "gnoristine genera" world-wide and of other "sciophilinae" genera as yet unstudied critically has been completed. However, as the differences between the three species considered in this paper are at least great enough to justify subgeneric status in a revised generic classification, I consider it desirable to provide names for them to draw attention to the need for them to be considered in such a revision.

Grzegorzekia in the sense considered by Söli (1997) excludes *mallochorum* and *phoenix* because the characters which define it include a setose vein Sc. In the possible phylogenies represented in his Figs 44–46, it either occupies an isolated position or is placed in proximity to *Drepanocercus* and *Paratinia*; *Aglaomyia* was not studied. Although genitalia characters were not utilised in the phylogenetic analyses, they are fully discussed in the text and the absence of gonostyli is evidently unique to *Grzegorzekia* among the genera studied (also applying to *Phoenikiella* as indicated here). As suggested above, the weak development of gonostyli in *Creagdhubhia* may indicate relationship with *Grzegorzekia* and *Phoenikiella*. Gonostyli are well developed in *Drepanocercus* and *Paratinia*, as in *Aglaomyia*; these genera also have R_4 present, *Drepanocercus* being distinguished by the plesiomorphous character of the posterior fork arising near the wing base and *Paratinia* by the presence of setae on the wing membrane.

Acomoptera Vockeroth, like *Aglaomyia* a Nearctic genus to which two Palaearctic species have now been referred, was also not included in Söli's analysis. This also has

R_4 present, but differs in the more basal position of sc-r and R_s so that the radial cell is longer and the posterior fork beginning a little beyond the base of the stem of the median fork and gonostyli are also well developed. The European species *D. spinistylus* Söli, assigned to *Drepanocercus* by Söli (1993), appears intermediate between the genotype *D. ensifer* Vockeroth and *Acomoptera*. The basal portion of CuA_1 is also weak and the posterior fork not so clearly forking basally in *spinistylus* as in *ensifer*.

Some species of *Synapha* Meigen also have R_4 present: the species dealt with in this paper run to the couplet including *Synapha* and *Aglaomyia* in the Nearctic key by Vockeroth (1981). *Synapha* differs from *Grzegorzekia* and *Creagdhubhia* by the characters used in the key by Hutson, Ackland & Kidd (1980), i.e. base of posterior fork well beyond base of stem of median fork, lateral ocelli less than their width from the eye margin and presence of a well developed empodium.

There are four other gnoristine genera with R_4 present, which differ from the above in having laterotergites setose: *Apolephthisa* Grzegorzek, which has Sc setose like *G. collaris* but sc-r absent and the posterior fork arising near the wing base, and three genera with Sc ending in R (probably due to the portion of Sc beyond the junction with sc-r being lost), *Dziedzickia* Johannsen, *Hadroneura* Lundström and *Syntemma* Winnertz, the second also with a long proboscis and the last also with the wing membrane bearing macrotrichia. *Ectrepesthoneura* mentioned above also has Sc ending in R and the posterior fork beginning near the wing base.

The character of the "sensory" area on the male mid tibia also requires discussion, as this is one of the distinctions of *Creagdhubhia* from *Grzegorzekia* and *Phoenikiella*. The significance of this character is unclear, as it appears variously developed in several apparently unrelated genera but always in the same position at about the basal third of the tibia. It was described for *Ectrepesthoneura* by Chandler (1980), who also figured it for some species of *Tetragoneura*, *Synapha*, *Coelophthinia* Edwards and *Polylepta* Winnertz. These genera all have a conspicuous broad ovate or elongate area. It was also mentioned that a narrower slit-like area is present in *Phthiria* Winnertz and *Speolepta* Edwards and it is these latter which more closely resemble *Creagdhubhia* in this respect. Söli (1997) cited this character for all of the above mentioned genera except *Tetragoneura* and *Synapha*, where it is present in some species of each genus only; however, the genera concerned were widely dispersed in his postulated phylogenetic trees except for that in Fig. 46, where *Speolepta*, *Coelophthinia*, *Phthiria* and *Polylepta* are nested progressively as sister groups at the base of the Sciophilinae grouping. In his other two postulated trees, *Coelophthinia* and in one case *Speolepta*, both former gnoristine genera transferred to Sciophilinae by Väisänen (1986) are associated with Mycomyinae.

It should also be mentioned that some characters used to define genera in the Gnoristinae are not always of generic significance, such as presence or absence of setae on the laterotergite, both conditions of this character being found in *Boletina*. Spinose setae are present on the male cerci in many but not all species of *Boletina*, so this character is not unique to *Creagdhubhia*. An analysis of all characters for the world fauna will be necessary for a natural generic classification to be achieved.

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ANNOUNCEMENT

CORNISH LARGE BLUE BUTTERFLY RECORDS—Appeal for information

As part of a study on the former occurrence of the large blue *Maculinea arion* (L.) in Cornwall for our County Millennium Butterfly Atlas, I came across an Edwardian record on the national database for "Portreath", supplied by V. E. Shaw apparently from the private collection of A. Morton. This is the only record for the area, but is some 50 miles south of the normal range along the far north coast of Cornwall and round to Clovelly in Devon. Monk's Wood have no further details on either name. In order that I can track this record down, I would be grateful for any information on either V. E. Shaw, or the whereabouts of A. Morton's collection. I would also like to hear from anyone with information on Cornish Large Blues in old collections which have data labels showing specific locations other than Millook or Bude.

If you have any information on the above, please contact me on 01208 880106—MALCOLM LEE, Gullrock, Port Gaverne, Port Isaac, Cornwall PL29 3SQ.